

5.0 CULTURAL RESOURCES

This chapter presents the assessment of the Section of Environmental Analysis (SEA) of the potential cultural resources impacts that could be caused by the construction and operation of each of the eight alternatives being studied in the environmental review process for this proceeding: the Proposed Route; Alternative 1; Alternative 2; Alternative 3; the Eastern Bypass Route; the MCEAA¹ Medina Dam Alternative; Southwest Gulf Railroad Company's (SGR) Modified Medina Dam Route; and the No-Action Alternative. SEA has conducted four cultural resources studies throughout this environmental review process, two of which were included in Appendix I of the Draft Environmental Impact Statement (DEIS) and two of which are included in Appendix F of this Supplemental Draft Environmental Impact Statement (SDEIS). SEA did more extensive and comprehensive analysis of potential historic sites and structures here than in the other construction cases that have come before the Board, because as the environmental review progressed, it became increasingly apparent that some rail alternatives would bisect an area of unusual historic importance and that this area could potentially be avoided or impacts to the area minimized by other reasonable and feasible alternatives. This chapter provides a synthesis of the information presented in all four studies in order to appropriately compare all of the alternatives. SEA begins this chapter with a brief synopsis of each of the studies for the reader's reference.

Study 1: Preliminary Cultural Resources Assessment

SEA issued the Preliminary Cultural Resources Assessment in October 2003 to the parties that had been identified as consulting parties for the Section 106 process of the National Historic Preservation Act (NHPA).² This study set forth SEA's preliminary conclusions and

¹ MCEAA is the acronym for the citizen's group that proposed the MCEAA Medina Dam Alternative.

² The Section 106 consulting parties in this proceeding are as follows: the Advisory Council on Historic Preservation (ACHP); the Texas Historical Commission (THC); SGR; the Honorable Henry Bonilla of the U.S. House of Representatives; Comanche Nation of Oklahoma; Mr. Archie Gerdes; Kiowa Tribe of Oklahoma; MCEAA; Medina County Historical Commission; Mescalero Apache Tribe; Quihi and New Fountain Historical Society; Schweers Historical Foundation; Tap Pilam Coahuiltecan Nation of Texas; and Wichita and Affiliated

recommendations regarding cultural resources in the proposed project area (see DEIS, Appendix I-2) and the potential impacts to cultural resources from the construction and operation of the alternatives being studied at that time (Proposed Route, Alternative 1, Alternative 2, Alternative 3, and the No-Action Alternative). The consulting parties and other individuals submitted comment letters in response to the study. Based on those comment letters as well as other letters that SEA had received, SEA determined that the effects of the proposed project on the quality of the human environment (particularly cultural resources) are likely to be highly controversial, and decided to prepare an Environmental Impact Statement for this proceeding.

Study 2: Technical Memorandum: Supplement to the Preliminary Cultural Resources Assessment

In order to respond to the comments received on the Preliminary Cultural Resources Assessment, SEA conducted additional research and fieldwork to assess potential cultural resources impacts from the construction and operation of the alternatives being studied at that time (the Proposed Route, Alternative 1, Alternative 2, Alternative 3, and the No-Action Alternative). During this study, SEA determined that the entire Quihi, Texas area was likely part of a rural historic landscape. SEA included the results of this study in the DEIS (see DEIS, Appendix I-4).

Study 3: Rural Historic Landscape Study

Comments on the DEIS included those from some of the Section 106 consulting parties regarding the cultural resources analysis in the DEIS. In particular, the THC and ACHP raised concerns regarding the need to further identify the boundaries of the potential rural historic landscape and to examine whether additional rail line alternatives could potentially avoid Quihi. Based on the concerns that had been raised, the level of controversy in this proceeding, and the unique historic characteristics of the Quihi area that had already been identified in SEA's previous studies, SEA determined that a more detailed study of the rural historic landscape was warranted. SEA also decided to conduct an in-depth study of three additional rail line alternatives (the Eastern Alternatives: the Eastern Bypass Route, the MCEAA Medina Dam

Tribes of Oklahoma. Some of these parties had not been identified as consulting parties at the time SEA issued the Preliminary Cultural Resources Assessment.

Alternative, and SGR's Modified Medina Dam Route) that would bypass the Quihi area and could potentially impact cultural resources to a lesser degree than the alternatives studied in the DEIS.

In general, the intent of the rural historic landscape study (landscape study) was to determine if a rural historic landscape eligible for listing in the National Register of Historic Places (National Register) existed in the project area, and, if so, to tentatively identify its boundaries and determine its contributing³ and non-contributing⁴ resources (see Appendix F-2). This would enable SEA to compare the potential impacts from the alternatives being studied to any such landscape.

The landscape study resulted in the identification of three rural historic landscapes⁵ eligible for listing in the National Register⁶ as a historic district⁷ (the Quihi Rural Historic

³ “A contributing building, site, structure, or object adds to the historic architectural qualities, historic associations, or archeological values for which a property is significant because a) it was present during the period of significance, and possesses historic integrity reflecting its character at that time or is capable of yielding important information about the period, or b) it independently meets the National Register criteria.” *National Register Bulletin 24: Guidelines for Local Surveys: A Basis for Preservation Planning*, at 45. National Park Service, 1977 (Revised 1985) (*National Register Bulletin 24*).

⁴ “A noncontributing building, site, structure, or object does not add to the historic architectural qualities, historic associations, or archeological values for which a property is significant because a) it was not present during the period of significance, b) due to alterations, disturbances, additions, or other changes, it no longer possesses historic integrity reflecting its character at that time or is incapable of yielding important information about the period, or c) it does not independently meet the National Register criteria” (*National Register Bulletin 24* at 45).

⁵ “A rural historic landscape is defined as a geographical area that historically has been used by people, or shaped or modified by human activity, occupancy, or intervention and that possesses a significant concentration, linkage, or continuity of areas or land use, vegetation, buildings, and structures, roads, and waterways, and natural features.” *National Register Bulletin 30: Guidelines for Evaluating and Documenting Rural Historic Landscapes*, at 2. National Park Service, 1989 (Revised 1999). (*National Register Bulletin 30*).

⁶ The National Register was established under Section 101 of NHPA to serve as the Nation's formal list of significant cultural resources. Only properties listed in or eligible for listing in the National Register are given consideration under Section 106 of NHPA.

District, the New Fountain Rural Historic District, and the Upper Quihi Rural Historic District) (Figures 1 and 2, below). The landscape study revealed that the Quihi Rural Historic District is the most significant and is eligible for listing in the National Register at the state level of significance (meaning that it is important to the overall history of Texas) due to its rare architecture and because it retains aspects of a relatively unaltered Texas pioneer landscape. The New Fountain Rural Historic District and Upper Quihi Rural Historic District were also determined to be eligible for the National Register, but only at the local level of significance. The New Fountain Rural Historic District contains fewer intact examples of German-Alsatian architecture than the Quihi Rural Historic District, while the Upper Quihi Rural Historic District contains resources that represent state and nationwide trends rather than the unique ethnic heritage and use of local materials evident in the resources developed by the first generation German immigrants in Quihi.

Both the Quihi Rural Historic District and the Upper Quihi Rural Historic District are located within the project area for the proposed rail line construction project. The New Fountain Rural Historic District is located well west of the project area and would not be directly impacted by any of the routing alternatives. Overall, impacts would be substantially greater for those alternatives that would impact the Quihi Rural Historic District (the Proposed Route, Alternative 1, Alternative 2, Alternative 3 and the No-Action Alternative), due to its higher level of historic significance. The Eastern Alternatives would all impact the Upper Quihi Rural Historic District, but all three routes would be well east of the Quihi Rural Historic District.

Study 4: Technical Memorandum: Reconnaissance Survey of the Eastern Alternatives

In order to compare the potential cultural resources impacts of the Eastern Alternatives to the potential cultural resources impacts of the alternatives studied in the DEIS, SEA conducted a reconnaissance level survey of the Eastern Alternatives similar to the studies previously completed (Studies 1 and 2, described above). Appendix F-1 contains the technical report for this study.

⁷ Rural historic landscapes are determined eligible for listing in the National Register as either sites or historic districts (*National Register Bulletin 30* at 3).

This study determined that of the three Eastern Alternatives, the Eastern Bypass Route would have greater combined cultural resource impacts than the MCEAA Medina Dam Alternative and SGR's Modified Medina Dam Route.

Section 5.1 contains a synopsis of the landscape study that has been conducted, Section 5.2 presents the results of the reconnaissance survey for the Eastern Alternatives, and Section 5.3 compares the overall cultural resources impacts of all eight alternatives being studied for this proceeding.

5.1 Rural Historic Landscape Study

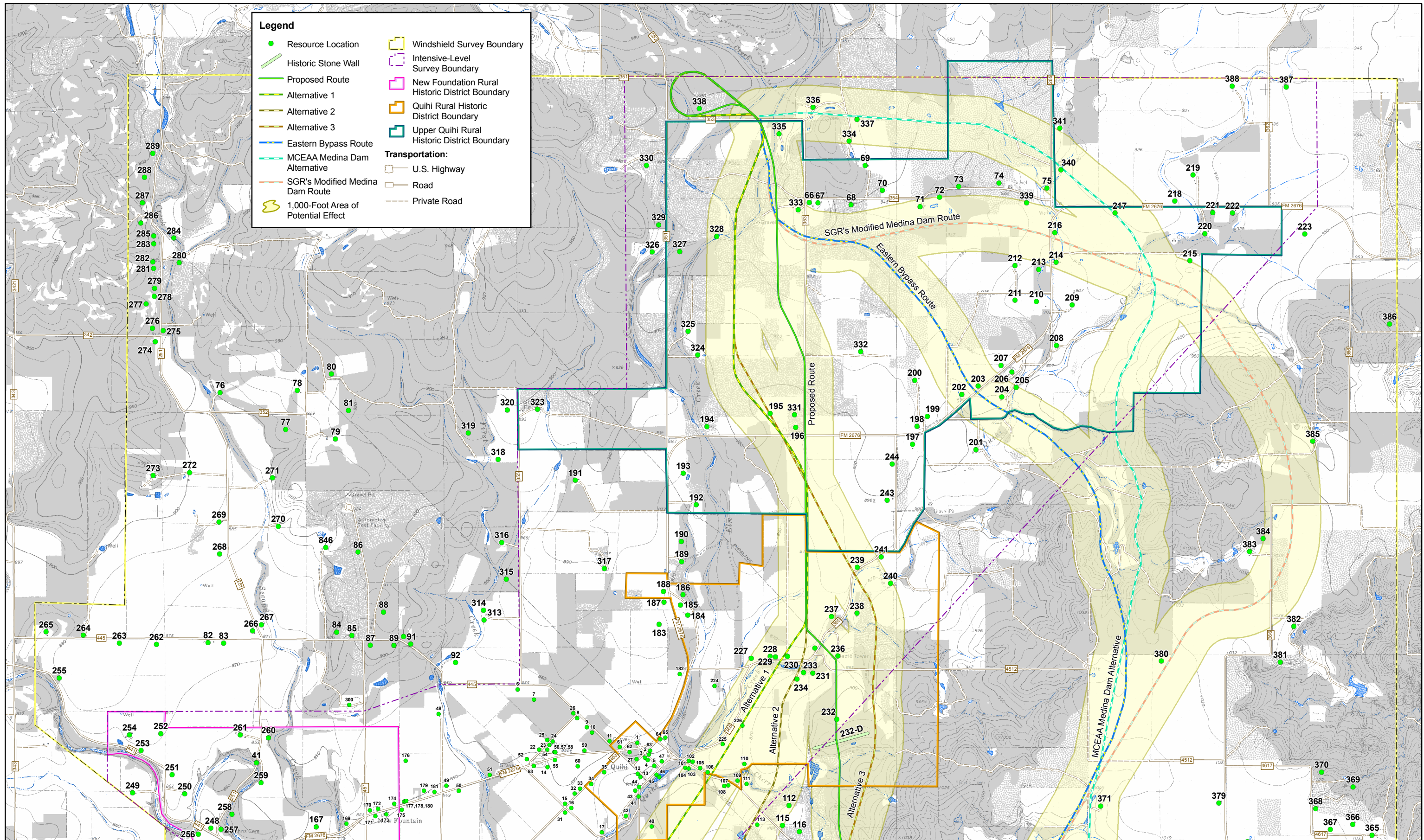
SEA completed fieldwork for the landscape study in three stages beginning with reconnaissance⁸ and windshield surveys⁹ followed by an intensive-level survey¹⁰ over the entire study area (see Figures 1 and 2). A preliminary assessment of the study area through analysis of historical records and previous investigations was completed prior to the onset of fieldwork, and further archival and secondary-source research was conducted concurrently with the field investigations. The main purpose of the research was the development of a historic context,¹¹ which would direct the researchers in the field to specific geographic areas and allow them to better understand the importance of associated historic resources (see Appendix F-2 for an

⁸ The reconnaissance survey consisted of a vehicular inspection of the area surrounding the proposed alternatives and a general overview of its historic properties.

⁹ The windshield survey consisted of a property-by-property, road-by-road investigation of all resources (both modern and historic) within the study area boundaries and included a basic inventory of associated resources.

¹⁰ The intensive survey consisted of gathering more information about the resources within the survey area boundaries and documenting all visible features for each of the resources within the survey area to determine whether the resources were contributing or noncontributing to the districts.

¹¹ An historic context is the relationship between an historic property and its temporal, thematic and geographical setting to highlight its historical importance. Historic context studies are critical to understanding the significance and National Register eligibility of historic properties, including districts.



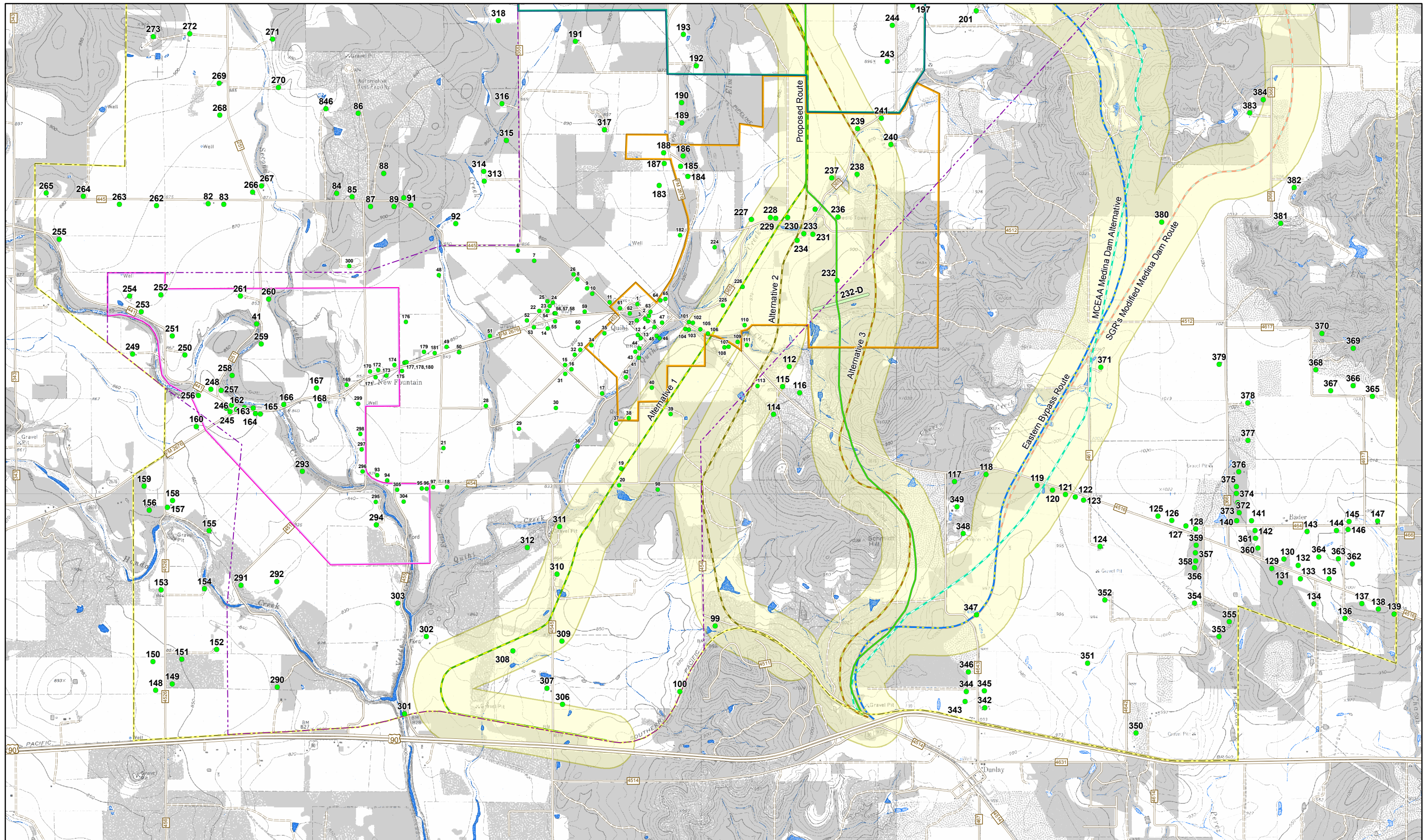
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Austin, TX 78729

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Figure 5.1
Resource Numbers & Survey Area Boundaries
Quihi Vicinity, Medina County, Texas



URS 9400 Amberglen Boulevard
Austin, TX 78729

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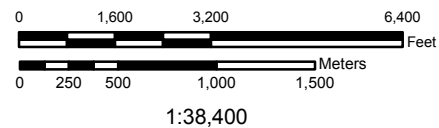


Figure 5.2
Resource Numbers & Survey Area Boundaries
Quihi Vicinity, Medina County, Texas

extensive historic context of the study area). A total of eight survey trips were completed, including an initial site visit on September 27, 2005. Field investigations occurred during the following timeframes: October 12-14, 2005; November 1-3, 2005; November 15-17 and December 7-8, 2005; and January 25-26, March 6-9, and March 28-31, 2006.

The initial reconnaissance survey was intended to determine the extent of cultural resources (both historic and modern) associated with the potential landscape. During the reconnaissance survey, SEA examined a wide area between the seven alternative rail routes, as well as adjacent areas containing what appeared to be high concentrations of similar resources. The windshield survey subsequently focused on the rural communities of Quihi, Upper Quihi, New Fountain, and the Bader Settlement, while the intensive-level survey further narrowed the study area to locations along Quihi Creek and other major creeks and their tributaries within the communities where much of the earliest historic-period development was established (see Figures 1 and 2).

Results of Intensive Survey

The intensive level survey resulted in documentation of 236 resource areas or clusters,¹² most consisting of farmsteads, and 1,474 individual features.¹³ Of the 236 resource areas/clusters, 122 (52%) were classified as potentially contributing to a potential rural historic landscape district or districts and 107 (45%) as noncontributing (Appendix F-2, Map Sheet 3A and 3B). Another seven resource areas/clusters were not evaluated because a preponderance of features they contained were too distant from the public right-of-way or so inaccessible that full documentation could not be made. The 1,474 features identified within the resource

¹² For the purposes of this discussion, a resource area/cluster is defined as one or more properties including those that are historic, modern and may or may not contribute to a historic area. Such clusters can consist of village centers, farmsteads, or ranching complexes (*National Register Bulletin 30*, at 18). These resource areas/clusters are referred to as sites in the rural historic landscape study.

¹³ Features are the individual components of a resource area/cluster and include buildings, structures and objects. “The features within a landscape are the physical evidence of past uses, events, and associations. They may reflect a variety of activities occurring at the time, or evolving functions in different periods of time, for example, orchards planted sequentially as a farm’s productivity increased. They may or not be historic or contributing to the significance for which the landscape meets the National Register criteria.” (*National Register Bulletin 30*, at 15).

areas/clusters consist of buildings, structures, sites, and objects; 931 (63%) were assessed to be potentially contributing and 532 (36%) were determined to be noncontributing to a potential rural historic landscape district or districts. Eleven additional features were not classified because they could not be adequately documented (a complete set of photos, survey data, and inventory of resources identified in the intensive survey are available on the CD included with this document).

Buildings were the most common feature type in the survey area. Buildings include houses, churches, stores, schools, barns, and sheds. Of these, 113 were found to be historic-dwellings ranging from circa 1860 to 1955 (Table 5.1-1). Structures such as windmills, fencing, granaries, cisterns, wells, corrals, etc. comprised the second largest group of features. A total of 531 structures were surveyed. The survey also documented 242 sites including stone ruins, cemeteries, plowed fields, pastureland, orchards, and major landscape features such as creeks. A number of objects were also identified, including a grain conveyer and horse drawn equipment.

Table 5.1-1 Historic Dwelling Types by Date of Construction

Dwelling Type	Approx. Dates of Construction	Number of Properties
German-Alsatian Houses	ca. 1860-1875	47
National Folk Houses	ca. 1890-1910	8
Victorian Houses	ca. 1900-1910	21
Bungalows	ca. 1905-1955	21
Minimal Traditional/Ranch	ca. 1930-1955	16

Based on the concentrations of cultural resources, including buildings, structures, objects, and sites, as well as traditional community boundaries, SEA determined that a long chain of related historic farmsteads and community nodes extended from the northeast reaches of Upper Quihi, southwest to the western limits of New Fountain. German-Alsatian stone buildings associated with the earliest European settlers, as well as L-plan frame houses dating to the turn of the 20th century and Craftsman influenced bungalows of the 1920s, are scattered throughout the area, as are civic properties such as churches and schools. However, patterns emerged that suggested demarcation of three related but distinct communities: Quihi (1846), the original

German settlement; New Fountain (1854), a slightly later settlement to the west; and Upper Quihi (ca. 1880), an extension of Quihi established by second and third generation German immigrants.

All three communities share a common heritage and building patterns; the earliest surviving buildings in each area are of stone construction similar to those the builders were familiar with in Europe. Buildings built after about 1880 are constructed of milled lumber and incorporate plans and styles typical of what was fashionable in late 19th and early 20th-century America. Nevertheless, differences in the area are apparent. The Upper Quihi area consists largely of late 19th/early 20th century houses and farms on large parcels of land. New Fountain, more than the other two regions, conveys the sense of an agricultural hub. An old stage line between San Antonio and Uvalde passed through the community and intersected with the main county road (now farm-to-market (FM) 2676). At the crossroads lay a stagecoach stop, flour mill, Methodist Church, Lutheran Church, and a general store. A number of substantial stone houses are clustered near the store and church.

Quihi is unique among the three districts. The center of Quihi lies off the main road, FM 2676, and is largely hidden from view by the trees and brush that line the creek and county roads. There are no paved roads or highway markers. FM 2676 passes by the Lutheran Church and an abandoned school, but little disturbs the old community. Its small stone houses cling closely to narrow, tree-shaded dirt roads, which in turn follow the meanders of Quihi Creek. Almost all of these roads cross the creeks at low-water fords rather than on bridges. Largely abandoned but with few modern intrusions, the houses typify a pioneer settlement on the Texas frontier.

The Rural Historic Landscape Districts

The boundaries¹⁴ for the three districts are based on concentrations of cultural resources that share a similar historic context and possess a relative lack of intrusion, notwithstanding the non-historic resources and resources that have been substantially altered and lack integrity that

¹⁴ The boundaries of the districts are estimates based on the level of documentation completed for the purposes of assessing impacts of the proposed undertaking. More detailed analysis would need to be completed to more firmly determine the boundaries prior to any formal National Register submission.

are also present in the vicinity.¹⁵ While the three districts form a nearly continuous swath of historic buildings, structures, pastures, and fields, they are occasionally interrupted by areas of recent alternations or uses, thus precluding a single unified district.

The Quihi Rural Historic District, which includes a large number of early German-Alsatian stone buildings, contains 56 resource areas/clusters (See Appendix F-2). Forty-two (75%) of these resource areas/clusters contribute to the historic district and include 261 (74%) contributing and 93 (26%) noncontributing features. The New Fountain Rural Historic District includes 29 contributing resource areas/clusters with 55 (66%) contributing features and 79 (33%) non-contributing features and two features that are unknown. The largest district is the Upper Quihi Rural Historic District, which is characterized by its late-19th and early-20th century farmsteads with numerous agricultural resources. SEA identified 52 resource areas/clusters, of which 31 (60%) are contributing. These resource areas/clusters contain 264 (68%) contributing and 119 (31%) noncontributing features. In all three cases, whether counted by overall resource areas/clusters or individual features, the percentage of contributing to noncontributing properties far exceeds the 50% threshold recommended by the National Park Service to denote historic districts.

The Quihi Rural Historic District is the most significant of the three districts, due to its importance to the overall history of Texas, rare architecture, and contributions to understanding the immigrant experience and ethnic associations of early French and German settlers and the settlement's founder, Henry Castro. The Quihi Rural Historic District, which includes a large number of early German-Alsatian stone buildings, is likely eligible for listing in the National Register at the state level of significance. The New Fountain Rural Historic District, containing a commercial center and surrounding farmsteads, would likely be eligible for listing in the National Register at the local level of significance. The largest district is the Upper Quihi Rural Historic District, characterized by its late-19th and early-20th century buildings. This district

¹⁵ Integrity is the ability of a property to convey its history significance and is defined by seven aspects: location; design; setting; materials; workmanship; feeling; and association. *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*. National Park Service, 1990 (Revised for Internet 2002).
<http://www.cr.nps.gov/nr/publications/bulletins/nrb15/nrb15_8.htm#seven%20aspects>
accessed on October 27, 2006.

would also appear to be eligible for listing in the National Register at the local level of significance. In addition, a number of properties identified outside the proposed district boundaries may be individually eligible for National Register listing.

5.2. Reconnaissance Survey of Eastern Alternatives

In addition to the landscape study, SEA completed a reconnaissance survey for the Eastern Alternatives. The survey identified known cultural resources within the area of potential effect (APE)¹⁶ previously defined for each of the alternatives (1000 feet on either side of the rail alignments) and made an evaluation of the potential for the APE to contain unknown cultural resources. SEA's intent was to provide enough detail to make the reconnaissance survey for the Eastern Alternatives comparable to the survey work previously completed for Alternative 1, Alternative 2, Alternative 3 and the Proposed Route so that impacts from all seven rail line alternatives and the No-Action Alternative could be compared and contrasted.

The area that would be crossed by the Eastern Alternatives lies entirely within the windshield survey boundary conducted as part of the landscape study (see Figures 1 and 2). Background research and field surveys conducted for the landscape study provided considerable data on above-ground historic resources in the APEs for the Eastern Alternatives, so this research was not duplicated. In addition, a study of the Eastern Bypass Route conducted by Gonzalez, Tate, & Iruegas, Inc. (GT&I) by Iruegas and Penick (2005) on behalf of SGR, provided information on this route. SEA extracted and reformatted relevant information from both of these studies in a manner that allowed the data to be compared with the data previously presented in the DEIS for the Proposed Route, Alternative 1, Alternative 2, Alternative 3 and the No-Action Alternative.¹⁷

¹⁶ The APE was defined as 1000 feet on either side of each alignment to coincide with the historic resources assessments that were completed for the Proposed Route, and Alternatives 1-3 (see DEIS, Section 3.11, Section 4.15, and Appendix I). Thus, the APE for each route is a corridor about 2000 feet in width.

¹⁷ It should be noted that in previous studies completed by SEA (see DEIS), individual historic resources (such as a building or barn) were counted as one resource (with an individual letter designation) while in the landscape study, entire clusters of resources (resource areas) were counted as one resource and given a single number designation. To reflect this distinction,

SEA conducted the research for the cultural resources survey of the Eastern Alternatives between January and May of 2006. The research began with a review of all information previously gathered for the landscape study and GT&I. In addition, SEA examined the data currently contained in the Texas Historic Sites Atlas online database as of May 2006 (<http://nueces.thc.state.tx.us/>).

SEA's research included the following activities:

- Updating historic and prehistoric background data sources.
- Performing a pedestrian and motor vehicle reconnaissance survey of each of the Eastern Alternatives to identify and locate above-ground historic properties within the APE.
- Field checking the location and condition of potential historic structures, ruins, and cemeteries (including both nineteenth and twentieth century resources).
- Compiling additional information on prehistoric archaeological sites that may be in or near the proposed rights-of-way of the Eastern Alternatives.
- Conducting a field reconnaissance of the project area to field-verify reported archaeological sites and delineate archaeologically sensitive zones.
- Preparing updated maps that accurately describe the cultural resources associated with each of the Eastern Alternatives.

Known Historic Period Resources

SEA's research identified 11 historic resource areas/clusters that could be affected by the Eastern Alternatives (Table 5.2-1). This total includes two German-Alsatian stone buildings, one standing (204 A)¹⁸ and one in ruins (202 C); six L-plan and bungalow frame houses circa 1900-1925; two early twentieth century barns; and one road remnant (205). Ten of these resource areas/clusters have been identified in the landscape study as contributing elements to the Upper Quihi Rural Historic District, and four of these are considered individually eligible for the National Register (204, 216, 333, & 335). The German-Alsatian stone ruin (Feature 202 C) that

individual historic properties are denoted here as features with a letter designation attached to the resource number (i.e. Feature 1 A), while clusters of resources are denoted by a single resource area/cluster number (i.e. Resource Area/Cluster 1). While the slightly different approaches used by the various studies may have led to minor inconsistencies between the studies, there is no reason to believe the inconsistencies have affected SEA's overall results or conclusions.

¹⁸ The resource identification numbers shown in this chapter are those used in the rural historic landscape study unless otherwise noted.

was identified within Resource Area/Cluster 202 was determined to be a contributing feature to the Upper Quihi Rural Historic District as an archaeological site, although the resource area/cluster was determined not to be contributing to the district overall. The Sturm farmstead, Resource Area/Cluster 336, is not located within the Upper Quihi Rural Historic District, but is considered potentially eligible for listing in the National Register (see Appendix F-1).

Table 5.2-1 Historic Resource Areas within 1000 Feet of the Eastern Alternatives.

ID #*	Name/Type	Date	Location**	National Register Status
335 A-J	Saathoff farmstead - bungalow frame house and outbuildings	ca. 1910	Off CR353 within 1000 feet of EBR, MMDA, and SMMDR	Resource area contributes to eligible Upper Quihi Rural Historic District and is individually eligible
336 A-H	Sturm farmstead – barn etc.	ca. 1940	Off CR353 within 1000 feet of MMDA	Resource area is potentially eligible; not located in a district
333 A-P	Dittmar farmstead - Craftsman bungalow frame house and outbuildings	ca. 1925	Off CR353 within 1000 feet of EBR and SMMDR	Resource area contributes to eligible Upper Quihi Rural Historic District and is individually eligible
72 A-I	Farm (pole barn, barn yard, stock pond, & landscape features)	ca. 1950	Off CR354 within 1000 feet of SMMDR	Resource area contributes to eligible Upper Quihi Rural Historic District
339 A-F	Farm (side gable barn, & landscape features)	ca. 1920	Off CR265 within 1000 feet of SMMDR	Resource area contributes to eligible Upper Quihi Rural Historic District
75 A-P	Farmstead (L-plan frame dwelling with barns and landscape features)	ca. 1910	Off CR354 within 1000 feet of MMDA	Resource area contributes to eligible Upper Quihi Rural Historic District
216 A-M	Farmstead (L-plan frame dwelling with associated barns and landscape features)	ca. 1910	Off FM2676 within 1000 feet of SMMDR	Resource area contributes to eligible Upper Quihi Rural Historic District and is individually eligible
214 A-F	Farmstead (L-plan frame dwelling with associated barns and landscape features)	ca. 1910	Off FM2676 within 1000 feet of SMMDR	Resource area contributes to eligible Upper Quihi Rural Historic District
202 C	German-Alsatian stone dwelling in ruins	ca. 1860	Off FM2676 within 1000 feet of EBR	Feature 202 C contributes to eligible Upper Quihi Rural Historic District
204 A-S	Farmstead (German-Alsatian stone dwelling with frame addition and associated barns and landscape features)	ca. 1870	Off FM2676 and CR364 within 1000 feet of EBR	Resource area contributes to eligible Upper Quihi Rural Historic District and is individually eligible
205	Portion of CR364, historic dirt road remnant	19 th century	East of FM2676 within 1000 feet of EBR	Resource area contributes to eligible Upper Quihi Rural Historic District

*Resource ID #'s from the Rural Historic Landscape Study. **EBR = the Eastern Bypass Route, MMDA = the MCEAA Medina Dam Alternative, SMMDR = SGR's Modified Medina Dam Route

In its survey of the Eastern Bypass Route, GTI documented two dwellings from the 1930s located east of County Road 4643 (Iruegas and Penick 2005). These are designated by GTI numbers HS1 and HS2, and were assigned numbers 348 and 349 in the windshield survey portion of the landscape study (this area was determined to be not part of the districts and eliminated from detailed study during the intensive level survey) (see Appendix F-2, Figures 3 and 4). Current mapping shows that these two houses are located outside the APE's of the Eastern Alternatives.

The landscape study identified four additional frame houses more than 50 years old in the general vicinity of the Eastern Alternatives during the windshield survey. These include a circa 1925 front gabled bungalow (124), a circa 1940 cross gabled house (342), a circa 1940 front gabled bungalow (382), and a circa 1910 hipped gabled house (283). As with the two buildings first identified by GTI, these four buildings are all located outside the APEs of the Eastern Alternatives.

In addition to these 11 resource areas/clusters located within the APEs (many of which consist of farms and their associated structures and fields), the landscape study noted that all three Eastern Alternatives cross landscape features that also contribute to the Upper Quihi Rural Historic District. These features include Quihi and Elm Creeks (two of the eight water bodies identified as Resource Area/Cluster 46) and various county roads (389).

As mentioned previously, the APE for this project was established in the DEIS as a zone extending 1000 feet either side of each rail line alternative, and that APE definition was maintained in the cultural resources study of the Eastern Alternatives for consistency. The APE thus encompasses a wide swath outside the actual construction footprint for each proposed alignment in order to take into consideration potential visual, vibration, and aesthetic effects to historic properties. As shown in Table 5.2-2, the APE of the Eastern Bypass Route encompasses seven resource areas/clusters, the MCEAA Medina Dam Alternative contains five, and SGR's Modified Medina Dam Route contains eight (some resources are located within the APE of more than one alternative).

Table 5.2-2. Summary of Historic Resource Areas Associated with Each APE*

Eastern Bypass Route	MCEAA Medina Dam Alternative	SGR's Modified Medina Dam Route
335#	335#	335#
333#	336#	333#
202	75	72
204#	46	339
205	389	214
46		216#
389		46
		389

* = Resource ID #'s from the Rural Historic Landscape Study. # = individually eligible for the National Register

As another measure of potential impacts, SEA calculated the acreage within each APE that would be located within the Upper Quihi Rural Historic District. The APE of the Eastern Bypass Route would cross 709 acres of the district, the APE of the MCEAA Medina Dam Alternative would cross 636 acres, and the APE of SGR's Modified Medina Dam Route would cross 863 acres (See Table 5.3-1; see also Appendix F-1, Table 3).

Historic Period Archaeological Site Sensitivity

No historic period archaeological sites have been recorded for the area of the Eastern Alternatives. However, historic archaeological deposits or artifacts may be associated with the resources previously noted. Houses and farmsteads are likely to contain a variety of associated features and structures such as barns, privies, trash middens, etc.

Since a systematic field survey of the Eastern Alternatives has not yet been conducted, it is likely that there are historic archaeological sites obscured by soil and vegetation that have not yet been identified. Although the specific locations of such sites are not known, the general areas in which they are likely to be located can be predicted based on historic maps and knowledge of the historic settlement pattern in the Quihi valley. The majority of historic period archaeological sites are likely to be located reasonably close to the historic road network or around and along Quihi Creek and its tributaries, because that area would have provided the best

access to reliable water.

Since the current road network closely approximates the historic pattern, and historic archaeological sites are often located near historic roads, historic archaeological site sensitivity was measured by identifying the number of historic road crossings associated with each alternative. The MCEAA Medina Dam Alternative would have six historic road crossings, SGR's Modified Medina Dam Route would have five, and the Eastern Bypass Route would have six (see Appendix F-1, Table 3).

Quantifying the number of road crossings does not take into account proximity to the areas of known high density of historic structures located at the northern end of the Eastern Alternatives where the routes would cross Quihi Creek. When these areas are taken into account, the proposed right-of-way of the Eastern Bypass Route appears to contain the most historic archaeological sites, followed by the proposed right-of-way for SGR's Medina Dam Route. The proposed right-of-way for the MCEAA Medina Dam Alternative has the least potential for historic archaeological sites because it skirts north and then east of much of the main historic settlement area.

Comparison of a 1936 road map with modern maps indicates that there is one structure that was present in 1936 but is no longer visible (see Appendix F-1, Figures 16 and 17). This is a house mapped at the end of County Road 461 (where all three Eastern Alternatives converge before crossing County Road 4516) on the 1939 map, which does not appear on the 1956 map. Today, the modern house that sits at this location appears to be one that replaced the earlier structure in the mid-20th century.

Known Prehistoric Sites

The Texas Archaeological Sites Atlas documents only one prehistoric archaeological site near the proposed rights-of-way of the Eastern Alternatives corridors.

Site 41ME132 (the Buddy Mangold Site) is located on the edge of an upland plateau approximately 1200 feet west of the MCEAA Medina Dam Alternative. The site form was

recorded by Dr. Thomas Hester in July of 2003, but was found earlier and investigated by the late Buddy Mangold on the property of his brother Russell. An avocation archaeologist, Buddy Mangold recovered evidence of intensive and long term deposits from almost every time period from Paleoindian to the Contact Period in deposits ranging as deep as five feet below the surface. Although documentation of his excavations is not currently available, he left his collection to his friends and neighbors, Glenn and Cynthia Lindsey. Glenn Lindsey observed some of Mr. Mangold's excavations in progress and the Lindsey's have allowed Dr. Hester to analyze the collections.

In addition to the investigation described above, archaeological surveys were conducted in the mid 1980s for roadway upgrades to U.S. Highway 90, just south of where the proposed rail line under any alternative would connect to the existing UP line. These surveys of 9.4 miles of U.S. Highway 90 by the state highway department did not identify any archaeological sites in the current project area (SDHPT 1985, 1986).

Prehistoric Site Sensitivity

Even though only one prehistoric site has been recorded in close proximity to the Eastern Alternatives, it is quite probable that other sites exist. Although Quihi Creek is not a large waterway with a deep flow, the bed of the creek appears to contain springs and seeps that have attracted and maintained abundant vegetation and wild game resources for thousands of years. Local inhabitants report that Quihi Creek rarely runs completely dry, even though it sometimes shrinks to isolated pools. The same factors that attracted the European settlers to Quihi in the 1840s likely attracted Native American settlement as well (see Appendix F-1, Figure 18).

Higher spots on the alluvial soils along the floodplain and adjacent stream terraces are likely to contain buried prehistoric sites. In addition, level landforms adjacent to the base of the valley side slopes may have colluvial soil deposits where archaeological sites have been buried by slope wash. Additional high-probability areas for prehistoric sites would include the portions of upland areas located near springs and the heads of creeks (see Appendix F-1, Figure 19).

Local residents have reported that there are at least two sinkholes in the vicinity of the

proposed quarry, and multiple “mound” features have also been reported in the proposed quarry area. Neither the sinkholes nor the mounds have been field-confirmed by an archaeologist (sinkholes were often used as human burial features by Native Americans).

To provide a more detailed analysis of the relative prehistoric archaeological sensitivity of the Eastern Alternatives, SEA developed a sensitivity model using available soils data, because substantial human settlements tend to be situated on relatively level, relatively well drained soils near streams and water sources, but not in active flood danger zones. However, this does not mean that all archaeological sites are located in such settings, because short-term, and special purpose sites can be located in a variety of additional settings.

The U.S. Department of Agriculture soil survey of Medina County (Dittmar et al. 1977) provides detailed mapping and description of the different soils that would be crossed by the Eastern Alternatives. These maps were available in digital format from the Natural Resources Conservation Service, so it was possible to use a geographic information system (GIS) program to display the soils data in spatial relationship to the alignments of the Eastern Alternatives. SEA then classified all soil types that would be crossed by the Eastern Alternatives as either high sensitive or low sensitive for prehistoric sites. The low sensitive category includes poorly drained and steeply sloping soil types, as well as extremely rocky soils and shallow clayey soils with caliche layers near the surface. The high sensitive category includes all other soils (see Appendix F-1, Figure 20). Quantitatively, the MCEAA Medina Dam Alternative would cross 5.8 miles of terrain classified as archaeologically high sensitive, the SGR’s Modified Medina Dam Route would cross 4.1 miles, and the Eastern Bypass Route would cross 5.4 miles (Table 5.2-3).

It should be emphasized that this sensitivity model is only intended as a general planning tool to compare multiple rail corridors. It does not attempt to depict the specific location of all archaeological sensitive landforms. A more detailed depiction of archaeological sensitivity within the APE would require more detailed geomorphological analyses in addition to the information presented here, including a systematic field survey.

Another factor to be considered is the extent of modern disturbances that may have impacted any archaeological sites present. For this project, 20th century agricultural practices of field clearing, leveling, and deep plowing are the most common agents of site impacts, and these practices are widely visible across the upland plateau that would be traversed by each of the Eastern Alternatives (Appendix F-1, Figures 21 and 22).

Combining the field reconnaissance, review of topographic maps, and the soils predictive model, a qualitative assessment of the relative prehistoric site sensitivity can be made for each of the Eastern Alternatives. Both the Eastern Bypass Route and the MCEAA Medina Dam Alternative are roughly equivalent in terms of impacts to prehistoric archaeological sites, while SGR's Modified Medina Dam route would probably have fewer impacts. This is due to the fact that it crosses fewer miles of sensitive terrain, and has more mileage along the broad, level agricultural plateau away from drainage heads (which likely is more disturbed terrain). The Eastern Bypass Route probably has more sensitive landforms adjacent to Quihi Creek than the MCEAA Medina Dam Alternative, making it the most archaeologically sensitive of the three Eastern Alternatives.

Summary

Table 5.2-3 summarizes the information gathered concerning historic and prehistoric cultural resources in the areas that would be crossed by the Eastern Alternatives and Table 5.2-4 incorporates this information into a rank order classification, comparing the construction and operation of the Eastern Alternatives in terms of degree of potential impacts to cultural resources. In Table 5.2-3, columns for each alternative list the total number of known resources (or their proxies such as road crossings and district acreages) located within the APE.

Although the SGR Modified Medina Dam Route has the most acreage within the Upper Quihi Rural Historic District, as indicated in Table 5.2-3, it is not ranked the highest for impacts to the district in Table 5.2-4. This is based on the location of each of the alignments in relation to the resources within the district.

Table 5.2-3 Summary of Cultural Resources Issues for the Eastern Alternatives.

	Eastern Bypass Route	MCEAA Medina Dam Route	SGR's Modified Medina Dam Route
Historic Resource Areas within the APE	7	5	8
Acreage of APE Within Historic District	709	636	863
# of Historic Road Crossings	6	6	5
Recorded Prehistoric Sites	0	1	0
Miles Archaeologically Sensitive	5.4	5.8	4.1

Table 5.2-4 Cultural Resource Sensitivity Ranking of the Eastern Alternatives.

	Eastern Bypass Route	MCEAA Medina Dam Route	SGR's Modified Medina Dam Route
Historic Structures/District (Rank order: 1 = most sensitive)	1	3	2
Historic Archaeological Sites (Rank order: 1 = most sensitive)	1	2	3
Prehistoric Archaeological Sites (Rank order: 1 = most sensitive)	1	2	3

The Eastern Bypass Route would intersect an older portion of the Upper Quihi Rural Historic District near two German-Alsatian farms and an historic road remnant. In short, SEA's analysis suggests that, of the three Eastern Alternatives, the Eastern Bypass Route would have greater impacts on cultural resources than the MCEAA Medina Dam Alternative or SGR's Modified Medina Dam Route. That route is likely to have the most prehistoric and historic archaeological sites on it and also would likely cause the most disruption to the setting of the Upper Quihi Rural Historic District.

5.3 Overall Comparison of Cultural Resource Impacts for All Alternatives

This section compares the potential adverse effects to cultural resources or historic properties within the project area from all seven rail line alternatives and the No-Action Alternative. As discussed below, all of the rail line alternatives would have the potential to cause

adverse effects to National Register eligible or listed historic properties. The No-Action Alternative also has the potential to cause impacts to cultural resources.

In general, though all of the alternatives have been situated to avoid physically impacting standing structures (the Proposed Route would have direct physical impacts to the wall in Resource Area/Cluster 232), construction of any of the rail line alternatives would likely impact both prehistoric and historic period archaeological sites. Also, adverse visual effects, noise and vibration impacts, obstruction of views, and aesthetic changes in the character and feel of the rural historic districts could result, therefore adversely affecting potentially eligible National Register sites, buildings, structures, districts, or objects within the APEs.

Cumulative impacts could extend outside the APE for each alternative. All three of the rural historic districts identified in the landscape study are vulnerable to existing large scale modern agricultural practices and encroaching housing developments in the area. The rural historic districts contain a number of individual structures of particular architectural distinction. Additionally, the districts themselves are important because of the way the structures in them relate to one another visually and spatially. Any bifurcation or alteration in the districts would be intrusive to the character-defining features that make these districts eligible for listing on the National Register. This is particularly the case for the Quihi Rural Historic District, where limited modern intrusions currently exist.

Two of the three identified rural historic districts would be crossed by one or more of the rail line alternatives (none of the alignments would cross the New Fountain Rural Historic District). Table 5.3-1 illustrates the land area and resources within each historic district that would be impacted by the APE of each rail alternative. The acreages listed represent acres of land occupied by each 2000-foot wide corridor within the historic districts (based on an APE of 1000 feet either side of each rail line alternative). The last column in Table 5.3-1 lists the number of resources within each APE that are either contributing to the districts' National Register eligibility or are individually eligible.

Table 5.3-1. Quantitative Comparison of Potential Historic District Impacts.

Rail Corridor (with 2000-foot APE)	Upper Quihi District*	Quihi District*	TOTAL DISTRICT ACREAGE*	Historic Resources
Proposed Route	730	439	1169	7
Alternative 1	771	509	1280	22
Alternative 2	771	390	1161	10
Alternative 3	801	416	1217	7
Eastern Bypass Route	709		709	7
MCEAA Medina Dam Alternative	636		636	5
SGR's Modified Medina Dam Route	863		863	8

*The numbers in these columns denote acres of APE within each district.

Table 5.3-1 shows that the four rail routes studied in the DEIS would impact both the Quihi and Upper Quihi rural historic districts, whereas the three Eastern Alternatives would impact only the Upper Quihi Rural Historic District. In evaluating the relative impacts of the various alternatives, as previously noted, the Quihi Rural Historic District is eligible for the National Register at the state level of significance, whereas the Upper Quihi Rural Historic District is eligible at the local level.

The comparisons in Table 5.3-1 do not take into account some of the specific impacts that might be expected based on the nature of the terrain and the density of contributing resources in the areas where they would intersect the historic districts. The National Register has identified a number of impacts that may adversely affect the integrity of the rural historic landscape districts (*National Register Bulletin 30*). Potential impacts relevant to SEA's environmental analysis of the proposed project (including impacts from the No-Action Alternative and cumulative impacts) include:

- Direct and cumulative impacts to above ground and subsurface historic resources from new rail alignment.
- Vibration impacts.
- Aesthetic impacts.

- Realignment of roadways under the No-Action Alternative and for the local market truck traffic that would take place under any alternative.
- Widening and resurfacing of historic roadways under the No-Action Alternative and for the local market truck traffic that would take place under any alternative.
- Changes in land use and management that alter vegetation, change the size and shape of fields, bifurcate farms, and flatten the contours of land.
- Introduction of non-historic land uses.
- Loss of vegetation related to significant land uses.
- Construction of new buildings, structures, or landscape features.
- Loss of boundary demarcations and small-scale features (fences, walls, ponds, and paving stones).

Such impacts can adversely affect the qualities of design, setting, feeling – three of the seven qualities that make a district eligible for the National Register.

In addition to the overall district impacts presented above, impacts on specific cultural resources would result, as set forth in the four cultural resources studies that SEA conducted (see DEIS, Appendix I; SDEIS, Appendix F). The following discussion summarizes the overall cultural resources impacts for the Proposed Route and all alternatives (including the No-Action Alternative). SEA has assessed the potential for visual/aesthetic and vibration impacts¹⁹ to the historic resources within each APE. The end of this section contains a discussion of potential cumulative and indirect impacts.

Proposed Route

The Proposed Route would directly affect both the Quihi Rural Historic District and the Upper Quihi Rural Historic District. The Proposed Route would potentially have the second largest impact on the Quihi Rural Historic District in terms of acreage (439) and the fourth most acreage impacts to the Upper Quihi Rural Historic District (730). The Proposed Route would

¹⁹ SEA's noise and vibration technical report concludes that vibration impacts to some historic properties could occur within 180 feet of any pile driving activities during the construction phases of the proposed project. However, SEA has assessed potential vibration impacts within 300 feet of each alignment to more conservatively consider any such potential impacts (see Appendix C-3).

have the third most impacts to combined acreage within both districts overall (1169) (see Table 5.3-1).

The Proposed Route potentially affects three contributing farmsteads in the Quihi Rural Historic District and two contributing farmsteads in the Upper Quihi Rural Historic District. Two additional resource areas/clusters denoting broad categories of landscape features - creeks and waterways (46) and county roads (389) - contribute to both rural historic districts and would be potentially affected by the rail route. Of these seven contributing resource areas/clusters, one is listed in the National Register and three others are considered individually eligible (Table 5.3-2 lists the resource areas/clusters potentially affected by the Proposed Route).

The Upper Quihi Rural Historic District contains the following contributing farmsteads that would be affected by the Proposed Route: the Dittmar Craftsman Bungalow and Historic Farmstead (333) and the Saathoff Bungalow and Historic Farmstead (335). Due to the integrity of the farmhouses and the quality and number of contributing agricultural buildings, both resource areas/clusters are considered individually eligible for National Register listing. They are good examples of early 20th century farmsteads in the Upper Quihi area.

In the Quihi Rural Historic District, contributing farmsteads affected by the Proposed Route are the Schuehle-Saathoff German-Alsatian House (231), the Schuehle-Saathoff Farmstead (232), and the Henry Schweers German-Alsatian House and Historic Farmstead (235).

The Schuehle-Saathoff German-Alsatian House is a 1.5-story, side-gabled stone dwelling built ca. 1860. It was listed in the National Register in 1981 as locally significant in the areas of architecture and education. The farmstead associated with the Schuehle-Saathoff House was not included in the nomination but is viewed as contributing to the district. The main dwelling on the property is not historic, but the resource area/cluster contains a number of historic agricultural buildings, fields, and stock ponds, and thus contributes to the rural character of the Quihi Rural Historic District. Directly impacted by the Proposed Route would be an

approximately 2000-foot stone wall (232 D) that may have been constructed as early as the Schuehle-Saathoff House.

The Henry Schweers German-Alsatian House and Historic Farmstead is considered individually eligible for National Register listing. The 1.5-story stone dwelling is a good example of German-Alsatian architecture. Its attic story has dormer windows, a rare feature on pioneer houses in the Quihi area. The resource area/cluster also includes two historic-period frame barns.

The Henry Schweers German-Alsatian House (235), located just west of the Proposed Route, could experience visual, and vibration impacts from construction and operation of the Proposed Route due to its close proximity. Potential adverse effects to the remaining properties would be limited to visual and aesthetic impacts.

The Proposed Route also would have the potential to affect previously unidentified historic and archaeological sites. A sensitivity model for both types of sites indicates that the Proposed Route would be the third most sensitive route for these types of resources behind Alternative 1 and Alternative 2 (see DEIS, Appendix I). There are no known historic or prehistoric sites located within the APE of the Proposed Route.

Table 5.3-2 Resource Areas within APE of Proposed Route*

Property Name/Type	Locale	National Register Status	Potential Effects	RHLS Number** /DEIS Letter***
Quihi, Elm, and Cherry Creeks		Quihi/Upper Quihi Contributing; Not Individually Eligible	Aesthetic and Visual	46
Schuehle-Saathoff German-Alsatian House	190 CR 4512	Quihi District; Listed	Aesthetic and Visual	231 = M
Schuehle-Saathoff Farmstead	190 CR 4512	Quihi District Contributing; 232 D Potentially Eligible	Aesthetic and Visual; direct physical impacts to 232 D	232 232 D = P
Henry Schweers German-Alsatian House and Historic Farmstead	CR 365	Quihi District Contributing; Individually Eligible	Aesthetic Visual; Vibration	235 235 A = G

Table 5.3-2 Resource Areas within APE of Proposed Route* (Continued)

Property Name/Type	Locale	National Register Status	Potential Effects	RHLS Number** /DEIS Letter***
Dittmar Craftsman Bungalow and Historic Farmstead	881 CR 353	Upper Quihi District Contributing; Individually Eligible	Aesthetic and Visual	333 333 A = A
Saathoff Bungalow and Historic Farmstead	1253 CR 353	Upper Quihi District/Contributing; Individually Eligible	Aesthetic and Visual	335 335 A = B
County Roads		Contributing/ Quihi and Upper Quihi Districts; Not Individually Eligible	Aesthetic and Visual	389

- * Note that more accurate mapping completed during the rural historic landscape study places the Schweers/Balzen Cemetery, previously included within the Proposed Route for the DEIS as Resource "H," (RHLS # 230 "O"), as now outside the APE for the Proposed Route (See DEIS, Table 4.15-1).
- ** RHLS = Rural Historic Landscape Study or the landscape study.
- *** The separate letter designations apply to individual historic properties that SEA identified in the DEIS. This approach is followed in the remaining tables in this section.

Alternative 1

Alternative 1 would directly affect both the Quihi Rural Historic District and the Upper Quihi Rural Historic District. Alternative 1 would have the largest impact on the Quihi Rural Historic District in terms of acreage within the APE (509) and would tie with Alternative 2 for the third most acreage impacts to the Upper Quihi Rural Historic District. Alternative 1 would have the most impacts to combined acreage within both districts overall (1280) (see Table 5.3-1).

Alternative 1 would affect more historic resources than any of the other routes under consideration. It would extend on a southerly course from the proposed quarry site to north of County Road 365, where it would turn to the southwest to pass through dense areas of German-Alsatian settlement along County Road 365 and County Road 4516, near the Quihi town site. It potentially affects 16 contributing resource areas/clusters in the Quihi Rural Historic District and two in the Upper Quihi Rural Historic District. Three additional resource areas/clusters denoting broad categories of landscape features - creeks and waterways (46), low-water crossings (41), and county roads (389) - contribute to the districts and would also be affected by the route. The Schorobiny German-Alsatian ruin and Cemetery (309) is located within the APE of Alternative

1, but would not be directly impacted. Of these 22 resource areas, 5 are considered individually eligible for National Register listing and five may be potentially eligible as archaeological sites (Table 5.3-3).

The Upper Quihi Rural Historic District contains two contributing resource areas that would be affected by Alternative 1: the Four Mile Water Hole (328) and the Saathoff Bungalow and Historic Farmstead (335). The Four Mile Water Hole is significant to the history of Quihi and Upper Quihi, and it is considered a contributing feature of the rural landscape. The Saathoff Farmstead is considered individually eligible for National Register listing.

Potentially affected contributing resource areas in the Quihi Rural Historic District include the Quihi Cemetery (38) and 15 historic-period farmsteads. Eleven farmsteads include German-Alsatian dwellings, one has a National Folk house, and two contain Victorian-era dwellings.

Of the German-Alsatian houses, four particularly intact and significant examples are considered individually eligible for the National Register, while the remaining seven are counted as contributing resources due to their condition or minor alterations. The Grell German-Alsatian House and Store (101) has historical significance to the Quihi area and is considered eligible for listing in the National Register.²⁰ The Browning German-Alsatian House is the only evident instance of Fachwerk, or half-timbering, in the Quihi area, and its associated stone barn is one of the most intact examples surveyed (225). The William Schweers German-Alsatian House and Historic Farmstead (230) is also considered individually eligible. The stone dwelling is one of the few 1.5-story examples in the Quihi area with clerestory windows, and Folk Victorian embellishments on the full-width front porch illustrate a common historic-period elaboration. The resource area/cluster includes a variety of historic domestic and agricultural outbuildings. Likewise, the Henry Schweers German-Alsatian House and Historic Farmstead (235) is also considered eligible.

²⁰ This resource was considered a German-Alsatian ruin in the DEIS (see DEIS, Appendix I).

Two contributing German-Alsatian ruins in the APE of Alternative 1 were documented by the Historic American Buildings Survey (HABS) in 1934 and 1936. The Louis Boehle German-Alsatian House Ruin (103) in the Quihi Rural Historic District was documented with measured drawings and large-format photography, while the Schorobiny German-Alsatian House Ruin (309), located southwest of the district, was photographed. Neither house is individually eligible for National Register listing for their architectural merit, but both warrant consideration for eligibility under Criterion D, as historic-period archaeological sites. Alternative 1 also includes three other German Alsatian house ruins (Feature 105 A, Feature 229 and Feature 234A) within Resource Areas 105, 229 and 234, considered potentially eligible for listing in the National Register as archaeological sites (see DEIS, Appendix I).

Historic maps of the region indicate that at least three historic properties were formerly located within the APE for Alternative 1, but are no longer standing (see DEIS, Appendix I-4, Figures 29 and 30).

In addition to the known resources, Alternative 1 has the potential to affect previously unidentified historic and archaeological sites. The sensitivity model for both types of sites indicates that the Alternative 1 would be the most sensitive route for these types of resources due to the length of the line and proximity to Quihi Creek and historic roads (DEIS, Section 3.11 and Appendix I).

While this alternative would not have any direct physical impacts to any known historic properties, it has the greatest potential to affect unknown historic and prehistoric archaeological sites. Four of the German-Alsatian buildings (106, 225, 229, 230) may also be close enough to Alternative 1 to experience vibration impacts from construction activities.

Table 5.3-3 Resource Areas within APE of Alternative 1

Property Name/Type	Locale	National Register Status	Potential Effects	RHLS Number /DEIS Letter
Quihi Cemetery	CR 4517	Quihi/Contributing; Not Individually Eligible	Aesthetic and Visual	38/AA
Low Water Crossing		Quihi/Contributing; Not Individually Eligible	Aesthetic and Visual	41
Quihi, Elm, and Cherry Creeks		Quihi/Upper Quihi Contributing; Not Individually Eligible	Aesthetic and Visual	46
Grell German-Alsatian House and Store	4383 CR 4516	Quihi/Contributing; Eligible	Aesthetic and Visual	101/ 101 A = S*
Victorian-Era House and Historic Farmstead	4383 CR 4516	Quihi/Contributing; Not Individually Eligible+	Aesthetic and Visual	102/ 102 A = T
Louise Boehle German-Alsatian House Ruin	4384 CR 4516	Quihi/Contributing; Ruins Potentially Eligible	Aesthetic and Visual	103/ 103 A = U
German-Alsatian House Ruin and Historic Farmstead	4311 CR 4516	Quihi/Contributing; Ruins Potentially Eligible	Aesthetic and Visual	105/ 105 A = W
German-Alsatian House and Historic Farmstead	4311 CR 4516	Quihi/Contributing; Not Individually Eligible+	Aesthetic; Visual and Vibration	106/ 106 A = X
Dairy Barn and Non-Historic House	4181-4189 CR 4516	Quihi/Contributing; Not Individually Eligible	Aesthetic and Visual	109
Nietenhoefer German-Alsatian House and Historic Farmstead	4181-4189 CR 4516	Quihi/Contributing; Not Individually Eligible+	Aesthetic and Visual	110 110 A = Z
Browning German-Alsatian House, Barn, Historic Farmstead	250 CR 365	Quihi/Contributing; Not Individually Eligible+	Aesthetic; Visual and Vibration	225 225 A = Q 225 B = R
George Heyen German-Alsatian House and Historic Farmstead	CR 365	Quihi/Contributing; Not Individually Eligible+	Aesthetic and Visual	227 227 A = L
Max Walden Victorian-Era House and Historic Farmstead	655 CR 365	Quihi/Contributing; Not Individually Eligible+	Aesthetic and Visual	228 228 A = K
Heyo Schweers German-Alsatian House Ruin	655 CR 365	Quihi/Contributing; Potentially Eligible	Aesthetic; Visual and Vibration	229 = J
Wm. Schweers German-Alsatian House and Historic Farmstead	685 CR 365	Quihi/Contributing; Eligible	Aesthetic; Visual and Vibration	230 A = I 230 O = H
Saathoff-Pichot National Folk House and Historic Farmstead	CR 4512	Quihi/Contributing; Not Individually Eligible+	Aesthetic and Visual	233 233 A = N
German-Alsatian House Ruin and Historic Farmstead	CR 4512	Quihi/Contributing; Ruins Potentially Eligible	Aesthetic and Visual	234 234 A = O
Henry Schweers German-Alsatian House and Farmstead	CR 365	Quihi/Contributing; Eligible	Aesthetic and Visual	235 235 A = G
Schorobiny German-Alsatian House Ruin, Cemetery	CR 4545	Not part of district/309 A Ruin Potentially Eligible	None	309 309 A = CC 309 B = DD
Four Mile Water Hole	CR 351	Upper Quihi District/Contributing; Individually Not Eligible	Aesthetic and Visual	328
Saathoff Bungalow and Historic Farmstead	1253 CR 353	Upper Quihi District/Contributing; Eligible	Aesthetic and Visual	335 335 A = A

Table 5.3-3 Resource Areas within APE of Alternative 1 (Continued)

Property Name/Type	Locale	National Register Status	Potential Effects	RHLS Number /DEIS Letter
County Roads		Quihi and Upper Quihi/Contributing; Not Individually Eligible	Aesthetic and Visual	389

* Feature 101 A was considered to be a ruin in previous studies conducted by SEA (see DEIS, Section 4.15).

+ Resource previously considered potentially eligible by SEA, but determined to not be individually eligible in the landscape study (see DEIS and Appendix F-2).

Alternative 2

Alternative 2 would directly affect both the Quihi Rural Historic District and the Upper Quihi Rural Historic District. Alternative 2 would have the fourth largest impact on the Quihi Rural Historic District in terms of acreage within the APE (390) and is tied for third with Alternative 1 for acreage impacts to the Upper Quihi Rural Historic District (771). Alternative 2 would also have the fourth most impacts to combined acreage within the APE's of both districts overall (1161) (see Table 5.3-1).

Alternative 2 potentially affects six contributing farmsteads in the Quihi Rural Historic District and two contributing farmsteads in the Upper Quihi Rural Historic District. Two additional resource areas containing broad categories of landscape features – creeks and waterways (46) and county roads (389) - contribute to both rural historic districts and would be affected by this potential rail route. Of these contributing resource areas/clusters, one is listed in the National Register and three others are considered individually eligible.

The Upper Quihi Rural Historic District contains two contributing resource areas/clusters that would be affected by Alternative 2: the Four Mile Water Hole (328) and the Saathoff Bungalow and Historic Farmstead (335). The Saathoff Farmstead is considered individually eligible for National Register listing.

Contributing farmsteads in the Quihi Rural Historic District that would be affected by the Alternative 2 route include three German-Alsatian houses, two German-Alsatian house ruins,

and one National Folk house. One of the German-Alsatian houses has been listed in the National Register, and the two remaining German-Alsatian houses and associated farmsteads are considered eligible for listing. The Schuehle-Saathoff German-Alsatian House (231) was listed in the National Register in 1981. The William Schweers German-Alsatian House and Historic Farmstead (230) resource area/cluster is considered individually eligible, as is the Henry Schweers German-Alsatian House and Historic Farmstead (235).

Table 5.3-4. Resource Areas within APE of Alternative 2

Property Name/Type	Locale	National Register Status	Potential Effects	RHLS Number /DEIS Letter
Quihi, Elm, and Cherry Creeks		Quihi/Upper Quihi Contributing; Not Eligible	Aesthetic and Visual	46
Heyo Schweers German-Alsatian House Ruin	655 CR 365	Quihi District/ Contributing; Ruins Potentially Eligible	Aesthetic and Visual	229 = J
Wm. Schweers German-Alsatian House and Historic Farmstead	685 CR 365	Quihi District/ Contributing; Eligible	Aesthetic and Visual	230 230 O = H, I
Schuele-Saathoff German Alsatian House	190 CR 4512	Quihi District/ Contributing; Listed	Aesthetic and Visual	231 231 = M
Saathoff-Pichot National Folk House and Historic Farmstead	CR 4512	Quihi District/ Contributing; Not Eligible+	Aesthetic; Visual and Vibration	233 233 A = N
German-Alsatian House Ruin and Historic Farmstead	CR 4512	Quihi/Contributing; Ruins Potentially Eligible	Aesthetic; Visual and Vibration	234 234 A = O
Henry Schweers German-Alsatian House and Farmstead	CR 365	Quihi/Contributing; Eligible	Aesthetic and Visual	235 235 A = G
Four Mile Water Hole	CR 351	Upper Quihi District/Contributing; Not Eligible	Aesthetic and Visual	328
Saathoff Bungalow and Historic Farmstead	1253 CR 353	Upper Quihi District/Contributing; Eligible	Aesthetic and Visual	335 335 A = A
County Roads		Quihi and Upper Quihi Districts/ Contributing; Not Eligible	Aesthetic and Visual	389

+ Resource previously considered potentially eligible by SEA, but determined not to be individually eligible in the landscape study (see DEIS and Appendix F-2).

Alternative 2 would not have any direct physical impacts to any known National Register eligible historic properties. However, the construction and operation of this alternative could still adversely affect eligible or listed National Register historic properties and two historic districts, both of which are eligible for listing in the National Register. Two resources subject to

potential vibration impacts from construction are the Saathoff-Pichot National Folk House and Historic Farmstead (233) and German-Alsatian House Ruin and Historic Farmstead (234).

In addition to the known resources, Alternative 2 has the potential to affect previously unidentified historic and archaeological sites. A sensitivity model for both types of sites indicates that the Alternative 2 would be the second-most sensitive route for these types of resources.

Alternative 3

Alternative 3 follows a similar route to Alternatives 1 and 2 through the Upper Quihi Rural Historic District but passes through the southeastern periphery of the Quihi Rural Historic District. Alternative 3 would thus directly affect both the Quihi Rural Historic District and the Upper Quihi Rural Historic District. Alternative 3 would have the third largest impact on the Quihi Rural Historic District in terms of acreage within the APE (416) and would have the second most acreage impacts to the Upper Quihi Rural Historic District (801). Alternative 3 would also have the second most impacts to combined acreage within both districts overall (1217) (see Table 5.3-1).

Alternative 3 potentially affects four contributing farmsteads in the Quihi Rural Historic District and two contributing farmsteads in the Upper Quihi Rural Historic District. Two additional resource areas/clusters denoting broad categories of landscape features – creeks and waterways (46) and county roads (389) - contribute to both rural historic districts and would be affected by Alternative 3. Of these eight contributing resource areas/clusters, two are considered individually eligible for listing in the National Register.

The Upper Quihi Rural Historic District contains two contributing resource areas/clusters that would be affected by Alternative 3: the Four Mile Water Hole (328) and the Saathoff Bungalow and Historic Farmstead (335). The Saathoff Farmstead is considered individually eligible for National Register listing.

In the Quihi Rural Historic District, contributing farmsteads affected by the proposed rail route include the Schuele-Saathoff Farmstead (232), a German-Alsatian house ruin and historic farmstead (238), the Oefinger German-Alsatian House and Historic Farmstead (239), and the Saathoff Victorian-Era House and Historic Farmstead (240). The German-Alsatian house ruin is a vacant house that has burned, though its walls remain largely intact. The farmstead contains a considerable number of contributing domestic and agricultural outbuildings. The Oefinger German-Alsatian House, despite some alterations, retains the distinctive form and design of pioneer settler homes in the area, and the farmstead has many contributing agricultural features. The Saathoff Victorian-Era House and Historic Farmstead resource area/cluster is considered individually eligible for National Register listing. The modified L-plan house retains its most distinctive features, including Classical columns on the porch, and the farmstead includes an array of contributing agricultural buildings, structures, and fields. The property has remained in the same family for over 100 years and is designated a Texas Century Ranch.

Table 5.3-5. Resource Areas within APE of Alternative 3*

Property Name/Type	Locale	National Register Status	Potential Effects	RHLS Number /DEIS Letter
Quihi, Elm, and Cherry Creeks		Quihi/Upper Quihi Contributing; Not Individually Eligible	Aesthetic and Visual	46
Schuele-Saathoff Farmstead	190 CR 4512	Quihi District/ Contributing; 232 D Potentially Individually Eligible	Aesthetic and Visual	232 232 D = P
German-Alsatian House Ruin and Historic Farmstead	CR 365	Quihi District/ Contributing; 238 A Potentially Individually Eligible	Aesthetic and Visual	238 238 A = F
Oefinger German-Alsatian House and Historic Farmstead	1021 CR 365	Quihi District/ Contributing; Not Individually Eligible	Aesthetic, Visual and Vibration	239 239 A = E
Saathoff Victorian-Era House and Historic Farmstead	CR 365	Quihi District/ Contributing; Eligible; Texas Century Ranch	Aesthetic and Visual	240 240 A = D
Four Mile Water Hole	CR 351	Upper Quihi District/Contributing; Not Individually Eligible	Aesthetic and Visual	328
Saathoff Bungalow and Historic Farmstead	1253 CR 353	Upper Quihi District/Contributing; Individually Eligible	Aesthetic and Visual	335 335 A = A

Table 5.3-5. Resource Areas within APE of Alternative 3* (Continued)

Property Name/Type	Locale	National Register Status	Potential Effects	RHLS Number /DEIS Letter
County Roads		Contributing/ Quihi and Upper Quihi Districts; Not Individually Eligible	Aesthetic and Visual	389

* = Note that more accurate mapping completed during the landscape study places the Saathoff German-Alsatian House, previously noted in the DEIS as Resource "C," (RHLS # 241), as now outside the APE for the Alternative 3 (see DEIS, Table 4.15-4).

The impacts to these properties would be largely visual in nature, although the Oefinger German-Alsatian House (239) could also be subject to vibration impacts from construction activities due to its close proximity to the proposed alignment.

In addition to the above historic properties, the proposed alignment for Alternative 3 would pass just west of known archaeological Site 41ME133. Although the site appears to be located 100 feet east of Alternative 3, the site boundaries are not known and there is a potential for the site to extend into the APE of Alternative 3. Based on current information about the site location, it does not appear that the proposed alignment would have adverse effects on this site.

Alternative 3 also has the potential to affect previously unidentified historic and archaeological sites. SEA's sensitivity model indicates that Alternative 3 would be the fourth most sensitive route for both these types of resources.

Eastern Bypass Route

The Eastern Bypass Route extends briefly to the south of the proposed quarry site before it bisects the Upper Quihi Rural Historic District on a southeasterly diagonal and turns southeast to avoid the Quihi Rural Historic District. The Eastern Bypass Route would thus only affect the Upper Quihi Rural Historic District. The Eastern Bypass Route would have the fifth largest impact in terms of acreage of APE within the Upper Quihi Rural Historic District (709). This route would have the sixth most impacts to the districts, in terms of acreage of APE within the districts (709) (see Table 5.3-1).

The Eastern Bypass Route would affect three individually eligible historic farmsteads within the Upper Quihi Rural Historic District. It also potentially affects three resource areas/clusters with features - creeks and waterways (46), county roads (389), and a stretch of the former alignment of FM 2676 (Site 205) - that contribute to the rural character of the district.

The Eastern Bypass Route would affect the Upper Quihi Rural Historic District in the following individually eligible farmsteads: a German-Alsatian house and historic farmstead (204); the Dittmar Craftsman Bungalow and Historic Farmstead (333); and the Saathoff Bungalow and Historic Farmstead (335). The German-Alsatian house represents a pioneer dwelling adapted to later architectural trends: a front wing and turned porch posts give the house the appearance of a Victorian-era L-plan. The surrounding farmstead contains a considerable number of contributing agricultural features, and the area is considered eligible for National Register listing. The Dittmar and Saathoff properties are both viewed as individually eligible for the National Register.

Table 5.3-6. Resource Areas within APE of Eastern Bypass Route

Property Name/Type	Locale	National Register Status	Potential Effects	RHLS Number /DEIS Letter
Quihi, Elm, and Cherry Creeks		Quihi/Upper Quihi Contributing; Not Individually Eligible	Aesthetic and Visual	46
German-Alsatian House, Non-Historic House and Farmstead	6009 FM 2676	Upper Quihi Non-Contributing Overall; 202 C Contributing	Aesthetic and Visual	202
German-Alsatian House and Historic farmstead	6110 FM 2676	Upper Quihi District Contributing; Individually Eligible	Aesthetic and Visual	204
Former County Road Alignment	CR 364	Upper Quihi Contributing; Not Individually Eligible	Aesthetic and Visual	205
Dittmar Craftsman Bungalow and Historic Farmstead	881 CR 353	Upper Quihi District Contributing; Individually Eligible	Aesthetic and Visual	333 333 A = B
Saathoff Bungalow and Historic Farmstead	1253 CR 353	Upper Quihi District Contributing; Individually Eligible	Aesthetic and Visual	335 335 A = A
County Roads		Quihi and Upper Quihi Districts Contributing; Not Individually Eligible	Aesthetic and Visual	389

All impacts on historic structures for this route appear to be in the category of visual and setting impacts; no direct physical impacts or vibration impacts are anticipated.

The APE for this route also includes the ruins of a German-Alsatian stone house (202C) that is in the Upper Quihi Rural Historic District. The Eastern Bypass Route has the potential to affect previously unidentified historic and archaeological sites. SEA's sensitivity model indicates that the Eastern Bypass Route would be the sixth most sensitive route for these types of resources.

The MCEAA Medina Dam Alternative

The MCEAA Medina Dam Alternative extends due east from the proposed quarry site before turning to the south near the intersection of County Road 354 and County Road 265. The MCEAA Modified Medina Dam Route would thus only affect the Upper Quihi Rural Historic District. The APE of the MCEAA Modified Medina Dam Route has the least amount of acreage within the Upper Quihi Rural Historic District (636) and the fewest impacts when measured by amount of acreage within any districts (636) (see Table 5.3-1).

Within the Upper Quihi Rural Historic District, the MCEAA Medina Dam Alternative would cross agricultural fields associated with resources north of County Road 354 and an area along FM 2676 (primarily noncontributing cultivated fields). It would affect two contributing farmsteads in the Upper Quihi district, one of which is considered individually eligible for the National Register. It also potentially affects two resource area/clusters with features - creeks and waterways (46) and county roads (389) – that contribute to the rural character of the district.

Contributing resource areas/clusters that would be affected by the potential rail line route consist of a Victorian-era house and associated agricultural resources (75) and the Saathoff Bungalow and Historic Farmstead (335). The Saathoff property is considered individually eligible for the National Register.

One other resource area/cluster is within the APE of the MCEAA Medina Dam Alternative. The Sturm farmstead with a barn and other features (336) is potentially eligible for listing in the National Register, but is not a part of the Upper Quihi Rural Historic District.

All potential impacts for the historic structures on this route appear to be visual and setting impacts – no direct physical impacts or vibration impacts are anticipated.

The MCEAA Medina Dam Alternative also has the potential to affect previously unidentified historic and archaeological sites. SEA's sensitivity model for both types of indicates that the MCEAA Medina Dam Alternative would be the fifth least sensitive route for these types of resources.

This route appears to have the least potential of the seven rail line alternatives to impact specific historic resources and the broader landscape of the rural historic districts.

Table 5.3-7. Resource Areas within APE for MCEAA Medina Dam Alternative

Property Name/Type	Locale	National Register Status	Potential Effects	RHLS Number /DEIS Letter
Quihi, Elm, and Cherry Creeks		Quihi/Upper Quihi, Contributing; Not Individually Eligible	Aesthetic and Visual	46
Victorian Era House and Historic Farmstead	110 CR 354	Upper Quihi District Contributing; Not Individually Eligible	Aesthetic and Visual	75
Saathoff Bungalow and Historic Farmstead	1253 CR 353	Upper Quihi District, Contributing; Individually Eligible	Aesthetic and Visual	335 335 A = A
Sturm farmstead – barn etc.	Off CR 353	Not in district(s); Resource is Potentially Individually Eligible	Aesthetic and Visual	336
County Roads		Contributing/ Quihi and Upper Quihi Districts; Not Individually Eligible	Aesthetic and Visual	389

SGR's Modified Medina Dam Route

SGR's Modified Medina Dam Route would loop further to the east of the Eastern Bypass Route, extending east through the Upper Quihi Rural Historic District roughly parallel with County Road 354. SGR's Modified Medina Dam Route would have no effects on the other historic districts. SGR's Modified Medina Dam Route would have the most impacts in terms of acreage of APE within the Upper Quihi Rural Historic District (863). SGR's Modified Medina Dam Route would have the fifth most impacts to acreage within the APE of any district overall (863) (see Table 5.3-1).

SGR's Modified Medina Dam Route would affect six historic farmsteads in the district, three of which are considered individually eligible for the National Register. It would also potentially affect two resource areas/clusters with landscape features – creeks and waterways (46) and county roads (389) – that contribute to the rural character of the district.

Contributing resource areas/clusters affected by the potential routing alternative include a Victorian-era house and associated agricultural resources (214), plus two other historic farmsteads, one having a non-historic primary residence (72) and the other consisting of a barn and agricultural fields (339). Three resource areas/clusters considered individually eligible for National Register listing are a second Victorian-era house and historic farmstead (216), the Dittmar Craftsman Bungalow and Historic Farmstead (333), and the Saathoff Bungalow and Historic Farmstead (335).

The impacts to historic properties on this proposed route appear to be visual and setting impacts – no direct physical impacts are anticipated. Vibration impacts from construction activities are possible for the Victorian house at Resource Area/Cluster 216.

While SGR's Modified Medina Dam Route also has the potential to affect previously unidentified historic and archaeological sites, SEA's sensitivity model indicates that this would be the least sensitive route for these types of resources.

Table 5.3-8. Resource Areas within APE for SGR Modified Medina Dam Route

Property Name/Type	Locale	National Register Status	Potential Adverse Effects	RHLS Number /DEIS Letter
Quihi, Elm, and Cherry Creeks		Quihi/Upper Quihi Contributing; Not Individually Eligible	Aesthetic and Visual	46
Non-Historic House on Historic Farmstead	595 CR 354	Upper Quihi District Contributing; Not Individually Eligible	Aesthetic and Visual	72
Victorian-Era House and Historic Farmstead	6710 FM 2676	Upper Quihi District Contributing; Not Individually Eligible	Aesthetic and Visual	214
Victorian-Era House and Historic Farmstead	FM 2676	Upper Quihi District Contributing; Individually Eligible	Aesthetic; Visual and Vibration	216
Dittmar Craftsman Bungalow and Historic Farmstead	881 CR 353	Upper Quihi District Contributing; Individually Eligible	Aesthetic and Visual	333 333 A = B
Saathoff Bungalow and Historic Farmstead	1253 CR 353	Upper Quihi District/Contributing; Individually Eligible	Aesthetic and Visual	335 335 A = A
Historic Farmstead	1404 CR 265	Upper Quihi District/Contributing; Not Individually Eligible	Aesthetic and Visual	339
County Roads		Contributing/ Quihi and Upper Quihi Districts; Not Individually Eligible	Aesthetic and Visual	389

No-Action Alternative

If trucks are used to transport the limestone from the quarry to the UP rail line instead of a new rail line, archaeological sites would be less likely to be affected because new corridor construction would be reduced. However, a 100-acre truck to rail loading facility plus a 25-acre rail spur would be need to be constructed, potentially impacting archaeological sites within that acreage (depending on where it is sited).

Historic structures would be more likely to be affected under the No-Action Alternative than under any rail line alternative. Many of the potentially significant historic buildings are clustered along narrow unpaved roads in Quihi; these roads would be utilized by the high volume of truck traffic, resulting in a variety of direct effects. These effects include road widening,

which would likely impact sites associated with any historic buildings, including associated archaeological sites, or artifacts.

Evaluating the potential impacts associated with the No-Action Alternative is difficult, because detailed information on the extent and type of roadway modifications that might be associated with using trucks to transport the gravel is not available. As described by SGR (see letter from SGR, #EI-793, DEIS, Appendix G, and page G-155), the trucking option would include the following: upon exiting the quarry, the trucks would travel about 2.5 miles on either County Road 351 or County Road 353, to FM 2676. The trucks would then proceed south on FM 2676 for about 3.5 miles and then east on County Road 4516 for about 3 miles to the point where a 100-acre truck-to-rail remote loading facility would be located. An alternative routing could involve traveling 2.4 miles southbound on County Road 353; 1.5 miles on a new, privately-owned road that would be constructed on property Vulcan Construction Materials, LP (VCM) currently owns connecting County Road 353 with County Road 365; about 1.25 miles south on County Road 365 to County Road 4516, and then east on County Road 4516 for about 1.3 miles to a private road that would lead to the loading facility.

Roughly 1,700 truck trips per day are currently estimated based on projected quarry output. Although the volume and weights of this truck traffic would require road upgrades, the precise scope of these upgrades is not yet known, so quantification of impacts to cultural resources cannot be accomplished in the same manner as was done for the rail alternatives. However, the following observations can be made.

Either of the trucking routes described above would traverse approximately 5.5 miles of roadways located within National Register-eligible historic districts (3.1 through Upper Quihi and 2.4 through Quihi). Trucks following these roads would come in closer proximity to more individual contributing historic structures within the districts than any of the rail line alternatives. In particular, truck traffic within the Quihi District would pass directly by either six or nine of the oldest stone German-Alsatian houses (depending on whether the private road connecting to County Road 365 option was used), and this traffic would cross through some of the oldest and least modified portions of the Quihi District. In addition to the structures along the roads, the

historic character of the district also includes features such as narrow unpaved roads and low-water fords across Quihi Creek (see Appendix F-1, Figure 1) that would likely need to be modified or removed to accommodate the anticipated truck volume.

Cumulative and Indirect Impacts

This section provides a description of the potential cumulative and indirect impacts on cultural resources for the project area. Cumulative impacts are defined as the impact on the environment from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions (40 CFR 1508.7). Construction and operation of VCM's proposed quarry is the one project that SEA identified that could contribute to cumulative impacts from SGR's proposed rail line construction and operation. Resources potentially impacted in the quarry area include unknown prehistoric and historic sites. A review of records at the THC did not identify any known historic or prehistoric resources in the quarry area. However as noted earlier in this chapter and elsewhere (SDEIS, Appendix F-1; DEIS, Appendix I), local residents have reported that there are at least two sinkholes in the vicinity of the proposed quarry, and multiple "mound" features have also been reported in this area on the Wurzbach property. Neither the sinkholes nor the mounds have been field-confirmed by an archaeologist (sinkholes were often used as human burial features by Native Americans).

Indirect impacts are those that are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable (40 CFR 1508.8). SEA notes that possible indirect impacts to historic properties in the project area could include development and growth, and large scale agriculture, abandonment, deterioration and neglect of historic properties are also an issue, particularly to the fragile German-Alsatian ruins in the project area. However, many of the same future impacts that might be expected if this rail line is built (continued development, growth, and large scale agricultural practices) would likely occur with or without the construction of a new rail line. Indeed, as SEA stated in the DEIS (see DEIS, Section 4.18), there is no way, based on information available at this point, to predict whether there would be an increase in area development as a result of this project. Moreover, while development in the area could negatively impact historic properties, development and growth in the region could

also provide positive opportunities for redevelopment and reuse of historic or culturally significant structures in the project area that have been allowed to deteriorate. In fact, since the onset of cultural resources investigations completed by SEA, several German-Alsatian buildings in the project area have been renovated for reuse as residences.

Overall Summary of Potential Impacts to Historic and Prehistoric Resources

Table 5.3-9 summarizes the information that SEA has gathered concerning historic and prehistoric cultural resources in the region crossed by the potential rail alternatives and the No-Action Alternative. This table illustrates that Alternative 1 and the No-Action Alternative would have the most potential impacts on cultural resources. Alternative 1 would be located near many more known and suspected historic structures (over twice as many as any other alternative); it would intersect the largest acreage within two historic districts (including the core of original Quihi), and it would cross the most amount of terrain that has high potential for containing archeological resources. The No-Action Alternative would likely have fewer archaeological impacts (because it would probably involve less ground disturbance than the rail alternatives), but it would have a greater impact on the historic districts due to extensive modification of the historic road network and the visual, vibration (depending on the distance from the roadway to the historic structures) and auditory effects of the high volumes of truck traffic.

Table 5.3-9. Summary of Cultural Resources Impacts for All Alternatives

Routes	Rail Routes Studied in the DEIS				Rail Routes Studied in the SDEIS			
Historic Resources (within 1000 feet unless stated otherwise)	Proposed Route	Alternative 1	Alternative 2	Alternative 3	Eastern Bypass Route	MCEAA Medina Dam Alternative	SGR's Modified Medina Dam Route	No-Action Alternative
Length (miles)	7.5	9.0	7.0	7.5	9.2	9.9	10.9	---
Known Prehistoric Sites within about 1000 feet (National Register eligible)	None	None	None	41ME133 (100 ft east)	None	41ME132 (1200 ft west)	None	---
Overall Ranking of Potential Archaeological Site Impacts (1=highest)	3	1	2	4	6	5	7	Possibly less impacts than rail alternatives
Known Historic Resources	7	22	10	8	7	5	8	---
National Register Listed Historic Resources	1	0	1	0	0	0	0	---
National Register Individually Eligible Resources	4	9	5	4	3	1	3	---
Total Acreage of Rural Historic District(s) Crossed	1169	1280	1161	1217	709	636	863	More impact on districts than rail alternatives
Overall Ranking of Cultural Resources Impacts	3	1	2	4	5	6	6	1

Alternative 2 is ranked second highest in potential cultural resources impacts. Although it ranks fourth in total historic district acreage impacted, it is second in the number of individual National Register-eligible resources within the APE and has higher potential to affect archaeological resources.

The Proposed Route and Alternative 3 are ranked third and fourth in potential impacts. They both have relatively large areas within two historic districts, but they would be situated further east from the core of the Quihi Rural Historic District than Alternative 1 and Alternative 2 and they would encounter fewer individual National Register-eligible resources.

The Eastern Alternatives appear to have fewer cultural resource impacts than the original four rail alternatives. The Eastern Bypass Route is ranked fifth overall among the combined group. Although the SGR Modified Medina Dam route would have more acreage within the Upper Quihi Rural Historic District, the Eastern Bypass Route likely would have a greater impact because it would intersect an older portion of the district in relatively close proximity to two German-Alsatian farms and an historic road remnant. It also is more likely to include more prehistoric and historic archaeological sites.

SGR's Modified Medina Dam Route and the MCEAA Medina Dam Alternative are ranked the lowest of all alternatives for potential cultural resource impacts. The SGR Modified Medina Dam Route would cross FM 2676 and Quihi Creek in a portion of the landscape that has more modern landscape elements, such as more widely spaced farms, larger open fields, and fewer visual boundaries. The MCEAA Medina Dam Alternative would cross more archaeologically sensitive terrain than the SGR Modified Medina Dam Route, but it would skirt the northern and eastern margins of the Upper Quihi Rural Historic District.

5.4 Mitigation Measures for Cultural Resource Impacts

In March 2004, SEA, SGR and the THC drafted a programmatic agreement (PA), pursuant to the ACHP regulations implementing Section 106 at 36 CFR 800.14(b). The purpose of the PA is to outline additional historic property identification, evaluation, and effect determination, and potential mitigation measures that would be implemented prior to construction of any authorized rail line alternative (see DEIS; Appendix I-3). The draft PA included provisions to mitigate potential impacts to historic properties. Completion of the PA process was put on hold, however, pending the additional historic property identification and evaluation of the three Eastern Alternatives described in this chapter.

SEA intends to reinstate the development of an appropriate PA now that the additional identification efforts undertaken by SEA have been completed. Any changes to the draft PA would be developed with input from the Section 106 consulting parties including SGR, THC, any participating Federally recognized tribes, and the ACHP, and circulated for public review

and comment.²¹ SEA plans to include the final version of the PA in the Final Environmental Impact Statement. SEA will follow the prescribed process in accordance with Section 106 in developing any PA or other appropriate mitigation relating to historic resources.

²¹ As stated above, the Section 106 consulting parties in this proceeding are as follows: the ACHP; the THC; SGR; the Honorable Henry Bonilla of the U.S. House of Representatives; Comanche Nation of Oklahoma; Mr. Archie Gerdes; Kiowa Tribe of Oklahoma; MCEAA; Medina County Historical Commission; Mescalero Apache Tribe; Quihi and New Fountain Historical Society; Schweers Historical Foundation; Tap Pilam Coahuiltecan Nation of Texas; and Wichita and Affiliated Tribes of Oklahoma.